

name _____ Date _____ Per _____

Manipulating Graphs.

BF.3

Use the following equation for each problem below:

$$f(x) = y = 2x - 1$$

If $f(x) = y$ & $f(x)$ only tells you what to do to manipulate the equation.

① $f(x) =$ _____

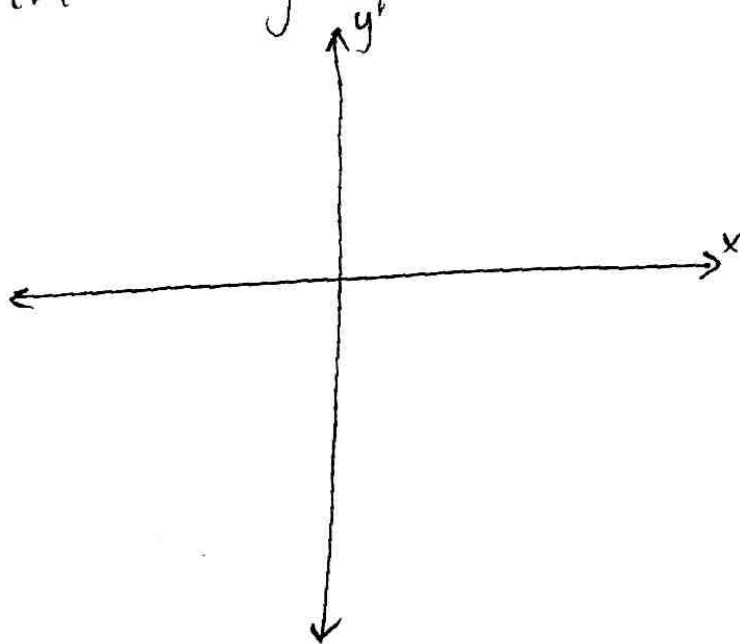
② $f(x) + 2 =$ _____

③ $2f(x) =$ _____

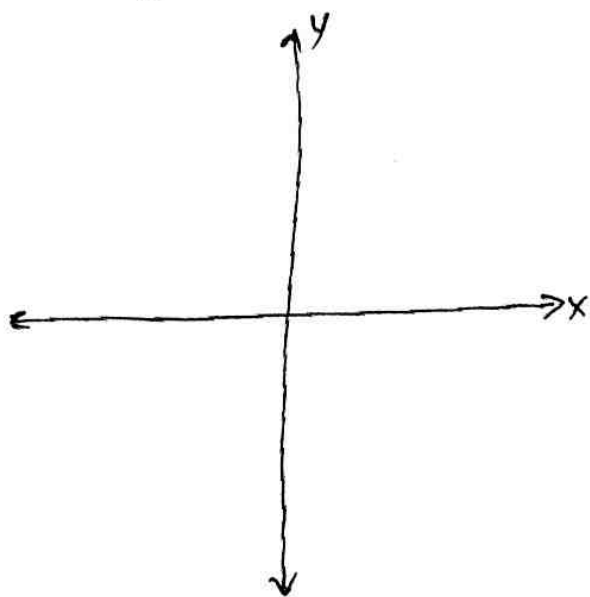
④ $f(2x) =$ _____

⑤ $f(x+2) =$ _____

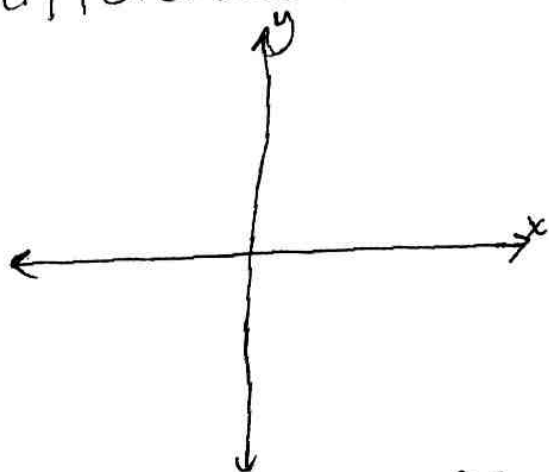
⑦ Graph $f(x)$ & $f(x)+2$ and describe the change in the graphs.



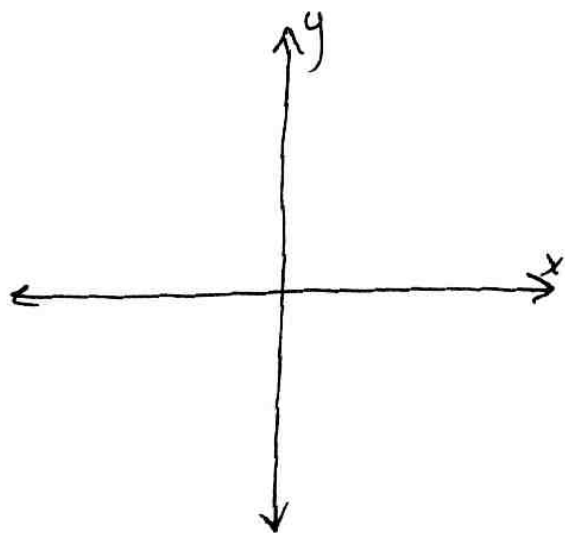
- ⑧ graph $f(x)$ & $2f(x)$ and describe the change in the lines.



- ⑨ Graph $f(x)$ & $f(2x)$ and describe the difference in the lines.



- ⑩ Graph $f(x)$ & $f(x+2)$ & describe the change.



name Answers

Date _____

Per _____

Manipulating Graphs.

BF.3

Use the following equation for each problem below:

$$f(x) = y = 2x - 1$$

If $f(x) = y$ & $f(x)$ only tells you what to do to manipulate the equation.

$$\textcircled{1} f(x) = \underline{2x - 1}$$

$$\textcircled{2} f(x) + 2 = \underline{2x + 1}$$

$= (2x - 1) + 2$

$$\textcircled{3} 2f(x) = \underline{4x - 2}$$

$= 2(2x - 1)$

$$\textcircled{4} f(2x) = \underline{4x - 1}$$

$= 2(2x) - 1$

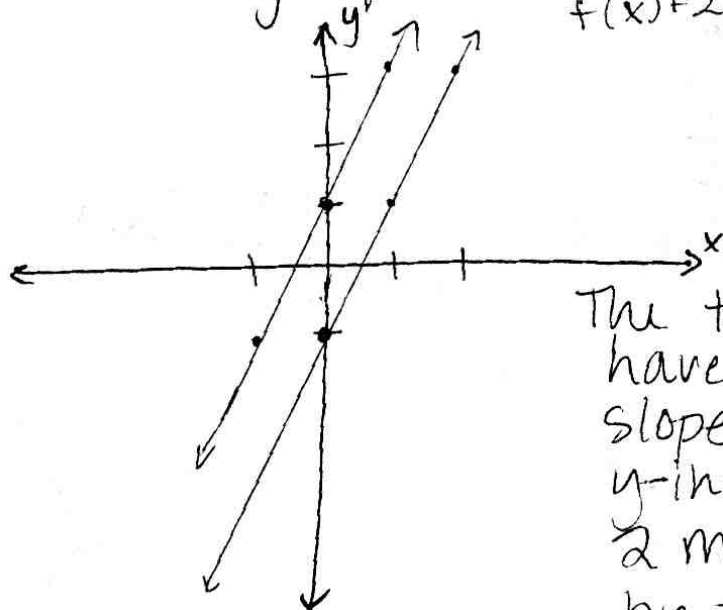
$$\textcircled{5} f(x+2) = \underline{2x + 3}$$

$= 2(x+2) - 1$
 $= 2x + 4 - 1$

$\textcircled{7}$ Graph $f(x)$ & $f(x) + 2$ and describe the change in the graphs.

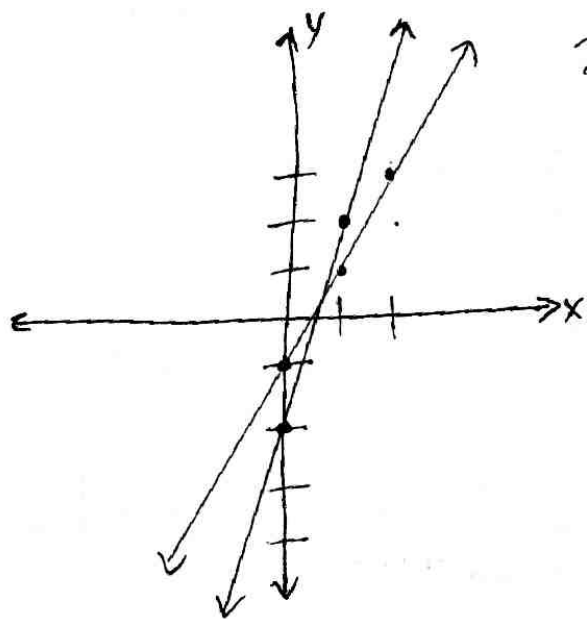
$$f(x) = 2x - 1$$

$$f(x) + 2 = 2x + 1$$



The two lines have the same slope but different y-intercepts. The 2 moved it up by two.

- (8) graph $f(x)$ & $2f(x)$ and describe the change in the lines.

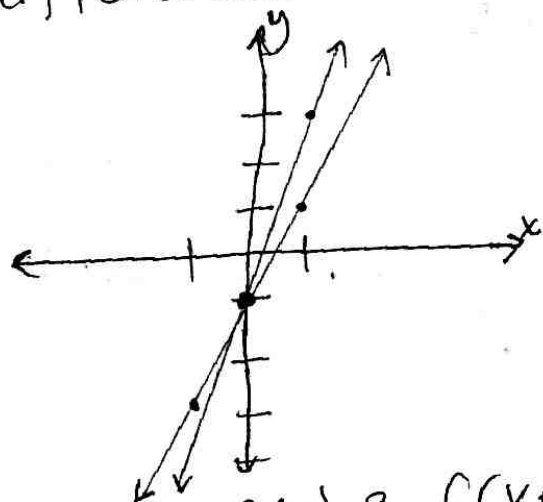


$$f(x) = 2x - 1$$

$$2f(x) = 4x - 2$$

Multiplying the equation by 2 makes the line more steep & the y-intercept dropped by 1.

- (9) Graph $f(x)$ & $f(2x)$ and describe the difference in the lines.



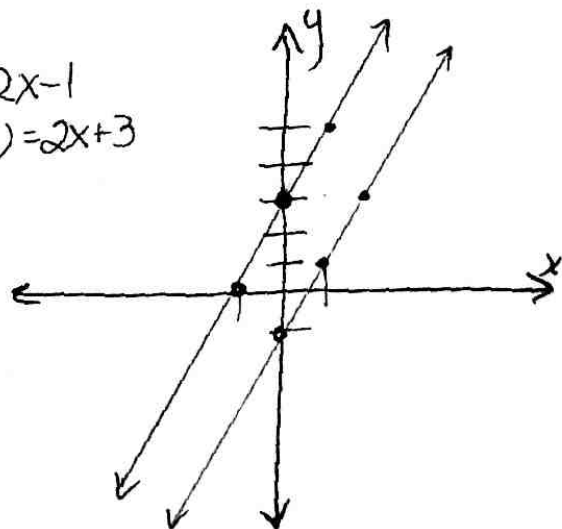
$$f(x) = 2x - 1$$

$$f(2x) = 4x - 1$$

Multiplying x by 2 makes the equation's graph more steep.

- (10) Graph $f(x)$ & $f(x+2)$ & describe the change.

The slope is still the same but the y-intercept has now changed.



$$f(x) = 2x - 1$$

$$f(x+2) = 2x + 3$$